scientific triumph of the greatest practical importance; for a large number of disease forms whose etiology is thus far but little understood, would at once receive their explanation and rational treatment. Meanwhile it will be well to preserve a neutral attitude and to notice whether and how far the very optimistic positions of the author will be substantiated by others.

HYGIENE AND PUBLIC HEALTH.

UNDER THE CHARGE OF
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Typhoid Fever and Shellfish.—An outbreak of typhoid fever due to polluted clams from flats near an outfall sewer is reported by J. F. BEALE (*Lancet*, 1907, i, 20): 7 persons ate of clams, which were said to have been thoroughly cleaned and boiled; 4 escaped with diarrhœa and vomiting, but 3 had typical typhoid. Clams obtained from the same source were found to be grossly polluted with sewage bacteria, which could be recovered alive from the tissues of the clams even after fifteen minutes' boiling. This result is in agreement with the findings of H. W. Clark ("Pollution of Shellfish," Thirty-seventh Annual Report of the State Board of Health of Massachusetts, Boston, 1906), whose tests with clams showed that one cannot be sure of sterility in all cases after five minutes' boiling, fifteen minutes' steaming, or by ordinary frying. The same was found to be true also of oysters, which if cooked for more than five minutes are rendered unsuitable for eating, except that, by the method followed in the preparation of "escalloped" oysters, sterility may be secured after fifteen minutes' baking, without serious damage to texture and palatability.

According to a note in *Medical Record* (November 10, 1906), Wesleyan University, Middletown, Conn., has had a second outbreak of typhoid fever, traced to infected oysters consumed at frate nity banquets on October 12, 1906. (It was on October 12, 1894, that similar banquets were held, at which oysters fattened about 300 feet from a sewer outlet were eaten. More than twenty cases of typhoid fever occurred among the participants, but no others among the student body were seized, with one exception—a man who ate oysters from the same lot in the shop of the dealer.—C. H.)

The Paris correspondent of the *Lancet* (1907, i, 551) makes mention of 33 cases of typhoid fever in widely separated places traced to oysters from Cette. The cases were of a grave type and 7 resulted fatally. (Cette oysters are notoriously contaminated and unfit for food. Attention was drawn to their character in 1896 by Chantemesse, in 1900 by Mosny, and at intervals by other French writers.—C. H.)

Action of Boric Acid on the Bacteria of Meat and Sausage Poisoning.—In order to determine what action, if any, is exerted by boric acid on bacteria other than those which bring about putrefaction, which may be present in meat and meat products, R. BASSENGE (*Ztschr. f. exper. Path. und Ther.*, 1907, ii, 113) undertook a series of experiments with Bacillus botulinus and a number of related species, all of which have been isolated from meats which have caused outbreaks of poisoning, and also the colon and typhoid bacilli. The two latter proved to be unable to withstand contact with a 2.5 per cent. solution of the acid. In double this strength it prevented the development of but two of the meat-poisoning species; but even after six days' contact it was unable to destroy any of them. Thus the agent can constitute a real danger to health and life, since it can prevent decomposition by overcoming the slightly resistant bacteria of putrefaction, but cannot affect those which may cause poisoning. The meat products may appear to be of good quality, and at the same time they may be positively dangerous.

Poisoning by Canned Beans.—An unusually extensive outbreak of poisoning due to a most uncommon cause, namely, canned beans, is reported by ROLLY (*Münch. med. Woch.*, 1906, No. 37, 1798). About 250 employes of a single establishment were seized some hours after a free indulgence in canned beans with symptoms of acute and severe enteritis. In some instances the onset occurred about four hours after eating, and in about twenty hours many were brought to hospital for treatment. After from two to four days' disturbance the patients gradually recovered. The beans had been heated for a long time, but not to the boiling point, and most of the bacteria present must have been killed; but colon and paratyphoid bacilli were found. Broth cultures of the latter, type B., were fatal to mice and guinea-pigs after being heated to 100° C. for fifteen minutes. It appears, then, that the trouble was due to the toxins rather than to living bacteria. The paratyphoid organism was not found in the feces. (This is the second recorded outbreak of poisoning due to canned beans; the first occurred in Darmstadt in 1904, and was unusually severe, causing eleven deaths. The beans were not cooked, but were eaten as a salad. The symptoms were not those of enteritis, but of botulism, with the characteristic disturbance of vision and other evidence of involvement of the central nervous system.—C. H)

New Method for Formaldehyde Disinfection.– In place of the Flügge and other methods of formaldehyde disinfection, which are expensive on account of the amount of alcohol required, dangerous on account of the possibility of fire, and slow in disengaging the gas, EICHENGRUEN (*Ztschr. f. angewandte Chemie*, 1906, xix, 1412) advises the use of a compound of paraform and metallic peroxides (barium and strontium), which he calls "Autan."

It comes in the form of powder or in tablets, as desired. On being wet with water, a mixture of paraform and peroxides gives off formaldehyde more or less quickly, according to the proportions in which the ingredients are present. If they are present in equal amounts, the powder on being mixed with twice its weight of water explodes with violence; but as prepared it gives off the gas with comparative slowness, but yet sufficiently rapidly. SELTER (*Münch. med. Woch.*, 1906, liv, 2425) states that the action is so rapid, and the room is filled so quickly, that it is hardly necessary to do more than close the larger ventilating openings. In his experiments, using as test objects staphylococci, anthrax spores, and fresh tuberculous sputum, the results were good, although a few staphylococci and many anthrax spores survived. WESENBURG (*Hygienische Rundschau*, 1906, xvi, 1241) conducted a series of experiments, in which he used as tests old library books, Staphylococcus aureus, anthrax spores, colon and typhoid bacilli, and pus (Staphylococcus aureus and Bacillus pyocyaneus), with good results. He used an ordinary kettle, in which he placed 1000 grams of autan, upon which he then poured 900 c.c. of water. Not only was the gas given off rapidly, but the air of the room was quickly saturated with aqueous vapor. From his results he concludes that complete disinfection may be expected from the use of 1.4 kilos of autan per 50 cubic meters of air space, with exposure from six to seven hours. He recommends the process as particularly adapted to the disinfection of closets, wardrobes, and other small spaces, with their contents. It is perfectly safe and very simple, there being no danger of fire and no need of any apparatus, beyond a pail or tub and a stick with which to stir the mixture with water. The material is put up in tin cans for rooms of different cubic capacities, and each can is accompanied with an "ammonia generator" containing ammonium chloride. The strongly alkaline residue in the can is treated with water, the ammonium salt is poured into it, and the resulting ammonia neutralizes the formaldehyde gas after the desired period of exposure.

With the suggestion of Eichengrün, Selter, and Wesenberg, that it is unnecessary to make a room as airtight as possible, A. NIETER (*Hygienische Rundschau*, 1907, xvii, 151) does not agree (and how can anybody?). Nieter finds the advantages of the process to be its simplicity, the freedom from danger of fire, and the possibility of a number of disinfections going on simultaneously under control of a single official. On the other hand, a distinct disadvantage is the high price of the material. (From the literature on the subject, it is difficult to learn wherein this process possesses any advantage over the equally simple and safe permanganate and formalin method of the State Board of Health of Maine.—C. H.)

A New Disinfectant: Metakaline.—Metakaline, a compound of hard soap and potassium metacresolate, is found by G. WESENBERG (*Centralbl. f. Bakter.*, 1907, xxxviii, 612) to possess great germicidal power. In 0.5 per cent. solution it is effective against the common pathogenic bacteria within a few minutes, and is absolutely non-irritating.

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